moved into the Pacific, and was central near N. 37°, E. 154°, the s. s. "City of Tokio," in N. 32° 22′, E. 145° 07′, reporting barometer 29.88 (758.9), wind nw, force 7, cloudy. The following reports from the s. s. "Gaelic" indicate the presence of this depression in the Pacific ocean. On the 29th, in N. 44° 15′, E. 167° 05′, barometer 29.06 (738.1), wind wsw., force 5, clear; 30th, in N. 44° 32′, E. 173° 04′, barometer 28.96 (735.6), wind nw., force 5, raining; 31st, in N. 44° 47′, E. 179° 59′, barometer 28.87 (733.3), wind w., showery.

As a noteworthy feature in the atmospheric conditions over eastern Asia, may be mentioned the high pressures 30.20 (767.1) to 30.60 (777.2) that prevailed over the Chinese Empire from the interior to the coast, while areas of relatively low-pressure prevailed over Japan. Unusually low temperatures occurred in China; at Zi-Ka-Wei, near Shanghai, the minimum temperature of the month, 21.°2 Fahr., (—6°.0

Cent.), occurred on the 28th.

TEMPERATURE OF THE AIR.

The distribution of mean temperature, over the United States and Canada, for the month of November, 1882, is exhibited on chart ii., by the dotted isothermal lines. The table of comparative mean temperatures in the lower left-hand corner of the

chart, shows the average temperature for the month in the several districts, as determined from observations taken at the Signal Service stations during the month of November in previous years.

Along the Atlantic coast, from New England to Florida, the mean temperature of the month is below the normal. In Florida, the departure is 2°.2; in the south Atlantic states, 1°.9, and in New England and the middle Atlantic states, less than 1°. In the northern and middle plateau districts, and on the Pacific coast, the temperature is also below the normal, the most marked departures occurring in the northern plateau and middle Pacific coast region, where they are 4°.4 and 3°.3, respectively. Throughout the remainder of the country the mean temperature is above the normal, the greatest departures occurring in the upper lake region, extreme northwest, the upper Mississippi and Missouri valleys, where the range is from 3°.7 to 4°.6. From the lower lake region southwestward to the Rio Grande valley, the departures vary from 1°.4 in the lower lake region, to 2°.8 in the Rio Grande valley.

DEVIATIONS FROM MEAN TEMPERATURE.

chart ii., by the dotted isothermal lines. The table of comparative mean temperatures in the lower left-hand corner of the the regular Signal Service stations, are shown in the table of

State	Minimum for November, 1882, Signal Service.		Lowest since Signal Service stations were opened—3 to 11 years.			Lowest from any other source.			
or Territory.	Station	Temp.	Station,	Temp.	Year.	· Place.	Temp.	Year,	Length of Record
Alabama	Montgomery	29	Montgomery	025	1881	Huntsville	°i3		9 years
Arizona	Fort Apache	13	Prescott	1	1881	Whipple Barracks	- 1	***********	9 "
Arkansas	Fort Smith	22 29	Little Rock	10	1880	Fort Smith	6 9		
California Do	Red Bluff	29	Campo	16	1881	Fort Bidwell	1	***************************************	
Colorado	Pike's Peak	-26	Pike's Peak	-36	1880	Fort Garland	35		30 "
Do	West Las Animas	一 1 16	**************************************			**************************************		·	
Jonnecticut	New Haven	- 3	New Haven Pembina	-40	1875 1874	New HavenFort Buford,	-37		
)akota)elaware	Delaware Breakwater	29	Delaware Breakwater	23	1880	Delaware City	13		10
ist. of Columbia	Washington,	24	Washington	12	1880	Washington	12		49 4
lorida	Peusacola	30 29	Saint Marks	27 20	1877	Fort Barrancas	19		56 st
eorgia	Atlanta	14	AtlantaEagle Rock		1881	Atlanta,	10 12		
dahollinois	Eagle Ro k	15	Champaign	— 1 — 3	1881 1880	Fort Hall			
ndiana	Indianapolis	22	Indianapolis	5	1880	Indianapolis	4		18 4
ndian Territory	Fort Supply	. 9	Fort Gibson	-10	1880	Fort Gibson			52 **
owa	Davenport	13	Dubuque	— 9 — 7	1875	Independence	-17		
Cansas	Dodge City	7 29	Dodge City Louisville	- 7	1880 1880	Fort Leavenworth Newport Barracks	-14 23		51 46
Kentucky Louisiana	LouisvilleShreveport	29	Shreveport	18	1880	Fort Jessup			
[aine,	Eastport	20	Eastport,	-13	1875	Orono			
Do	***************************************		***************************************		1	Brunswick	— 3		53 '46
farvland	Baltimore	26 16	Baltimore	15	1880	Emmittsburg	.7		
lassachusetts	Springfield Port Huron	10	Boston	— 2 — 9	1875 '79'80	FioridaFort Brady	-14 17	************	
Tichigan	Moorhead	~~~7	Duluth	29	1875	Fort Ripley	-30	***********	
(ississippi,,	Starkville	29	Vicksburg	23	'77&'80	Columbus	22		
lissouri	Springfield	20	Saint Louis	8	1880	North Springfield	- 9		j "
Do			***************************************			Allentown	- 5 - 2		4 4
Do	Terry's Landing		Fort Benton	31	1875	Camp Baker			90
ebraska	North Platte,	5	North Platte	10	1877	Camp Sheridan	—i7		
evada	Pioche	6	Winnemucca	9	1880	Camp Halleck	-12		11 "
lew Hampshire	Mount Washington	- 7	Mount Washington	40	1877	Grafton	-16		
Do	Atlantic City	21	Atlantic City	10	1875	Dartmouth College North Germantown,	- 9		18 4
Do					1010	Newark	š		4
New Mexico	Santa Fé	6	Santa Fé	-11	1880	Fort Union	15	*****	
Yew York	Buffalo	17	Albany	10	1875	Canton	20		
Do	Rochester	17 28	Charlotte	18	1880	GouverneurFort Johnston	-17 9	***************************************	40 "
Vorth Carolina	CharlotteSandusky	19	Columbus	5	1880	Westville	13	***********	54 ** 9 **
Do			,			College Hill	2	**********	
regon	Umatilla	15	Umatilla	9	1880	Camp Harney	4		12 "
	TT/1114_ mm c.m.d	14	The same	•••••••	1000	Fort Dalles	8		16 "
ennsylvania	Williamsport	14	Pittsburg	4	1880	Franklin Philadelphia	8 12		0
		**********			***********	Alleghany Arsenal	4		31 "
hode Island	Point Judith	15	Newport	4	1875	Fort Adams	3	**********	41 '4
Do	Nairagansett Pier	15		*******					******
outh Carolina	Charleston	36	Charleston	28	1881	Aiken	23 28	************	8 4
Do	Knoxville	27	Knoxville	15	'80 & '81	Charleston	— 3		8 ."
exas	Fort Elliott	14	Fort Elliott	- 5	1880	Fort Elliott	— š		3 4
Do				**********		Fort Richardson	8		10 4
	Salt Lake City	17	Salt Lake City	.8	1880	Coalville	-18		9 ".
ermont	BurlingtonLynchburg	27	BurlingtonLynchburg.	-10 13	187 <i>5</i> 1880	Newport Snowville	18 9	******	8 "
Do	TAILCH ON I Resease				1000	Fort Monroe	15	***********	56 4
	Colfax	10	Spokane Falls	3	1881	Fort Colville	- 8		20 "
Vest Virginia	Morgantown	25	Morgantown	8	1880	Helvetia	Ö		4 4
risconsin	La Crosse	16	Milwaukee	14	1875	Neillsyille	26		g 11
Do	Fort Washakie	-23	Cheyenne	20	1875	Fort Crawford	13 40		25 " 24 "

comparative temperatures on the left-hand of chart ii. The following items of interest in connection with this subject are reported by voluntary observers:

Illinois: Riley, mean temperature 36°.6, or 3°.7 above the November average of the last twenty-one years. The mean temperature of the autumn of 1882, is 3°.5 above the autumn

average of the past twenty-one years.

Indiana: Logansport, mean temperature 42°.3, or 2°.3 above the November average of a period of twenty-three years. During that period, the highest November mean, 48°, occurred in 1862; the lowest, 30°.3, occurred in 1880; the highest maximum, 80°, occurred in 1874; lowest minimum, —14°, occurred Saint Meinrad, mean temperature 43°2, or 1°.64 below the November mean of the past seven years.

Iowa: Iowa City, the following extract is taken from "Press Bulletin," number 115, for November, 1882, published by Dr. Gustavus Hinrichs, Director of the Iowa Weather Service: The mean temperature was nearly 2° above the twenty years normal. The first decade of the month was over 7° above the normal, and the last two decades averaged about .°5 below the normal. Clinton, mean temperature, 37°2, or 3°2 above the

November average.

Kansas: Wellington, mean temperature, 40°.1, or 1°.8 above the average of the last three years. The highest mean of that period, 45°.5, occurred in 1879; the lowest, 29°, occurred in Lawrence, mean temperature, 43°.07, or 4°.12 above the November average the past fifteen years. During that period, the highest November mean, 45°.87, occurred in 1878; the lowest, 31°.58, occurred in 1880; the highest maximum temperatures, 78° and 80°, occurred in 1873 and 1882, respectively; the lowest minimum, -1° occurred in 1872.

Maine: Gardiner, mean temperature, 35°.42, or 0°.19 below

the November average of the past forty-six years.

Maryland: Fallston, mean temperature, 40°.06, or 1°.04 below the average of the last twelve years. During that period, the highest November means, 46°.71 and 46°.14, occurred in 1870 and 1881, respectively; the lowest, 37°.5, occurred in 1873.

Missouri: Saint Louis, the Missouri Weather Service reports the mean temperature to be 2° above the November average.

New York: North Volney, mean temperature, 35°.27, or 0°.2 above the November average of the last fourteen years. During that period, the highest November mean, 38°.74, occurred in 1877; the lowest, 29°.49, occurred in 1873. The mean temperature of the autumn of 1882, 49°.47, is 1°.18 above the autumnal average of the last fourteen years. During that period, the highest autumnal mean temperature, 52°.5, occurred in 1881; the lowest, 44°.03, occurred in 1875. Palermo, mean temperature, 33°.6, or 0°.7 below the November average of the last twenty-nine years. During that period, the highest November mean, 41°.8, occurred in 1859; the lowest, 26°.8, occurred in 1873. The mean temperature of the autumn of 1882 is 43°.5, or 39.5 below the average autumnal mean of the past twenty-

Ohio: Cleveland, mean temperature, 39°.97, or 0°.28 above the November average of the last twenty-eight years. During that period, the highest November average was 44°.53, and the

lowest was 31°.91.

Vermont: Woodstock, mean temperature, 30°.99, or 0°.37 above the November average of the last fifteen years. During that period, the highest November mean, 36°.59, occurred in 1877; the lowest, 22°.46, occurred in 1873; the highest November maximum temperature, 73°.2, occurred in 1876; the lowest, -16°.5, occurred in 1875.

Virginia: Wytheville, mean temperature, 40°.83, or 1° below the November average of the past eighteen years.

West Virginia: Helvetia, mean temperature, 40°.44, or 0°.26 below the November average of the past six years.

RANGES OF TEMPERATUTE AT SIGNAL SERVICE STATIONS.

Key West, Florida, to 81° at Cheyenne, Wyoming. The small- Idaho, and Marquette, Michigan, 34°; Cape Mendocino, Caliest monthly ranges are: San Francisco, California, 19°; Key fornia, 35°. The largest are: Concho, El Paso and Palestine,

Table of Maximum and Minimum Temperatures for November, 1882.

Ι.							
	State or	Signal Serv	rice.	U. S. Army Post Surgeons, or Voluntary Observers.			
	Territory.	Station.	Max.	Min.	Station.	Max.	Min
	Alabama	Montgomery	83	29	Mount Vernon Barracks	o 86	26
	Do	Phœnix	92	24	Auburn	81	24
4	Do Arkansas	Fort Apache Fort Smith	72 86	13 22	Mount Ida	76	17
•	Do	Los Angeles Red Bluff	81 64	36 29	Borden Mammoth Tank	90 90	30 44
١	Do Colorado	West Las Animas.	69	i	Cisco Fort Lyon	50 71	10 1
	Do	Pike's Peak New Haven	30 72	-26 16	Pagosa Springs Southington	70 71	-22 51
	Do	New London	72 67	17 — 2	Fort Meade	71	— s
	Dakota Do	Rapid City Fort Buford	55	— 3 29	Fort Lincoln	50	_ s
ı,	Delaware District of Columbia.	Del. Breakwater Washington	72 79	24	Rock Creek	82	27
	Florida Do	Sanford Pensacola	87 81	41 30	Fort Barrancas	87	25
١	Georgia Do	Augusta Atianta	83 80	33 29	Forsyth	91	28
	[daho[llinois	Eagle Rock Cairo	61 80	—14 28	Anna	82	25
l	Do	Champaign Indianapolis	73 72	15 22	Elmira	73 81	26 20
	Indiana Do			9	Miami	74	8
	Indian Territory	Fort Supply Keokuk	84 74	18	Indianola	76	12
	Do Kansas	Davenport Dodge City	65 78	13	Humboldt Clay Centre Bowling Green	60 83	12
ŀ	Kentucky Do	Louisville	75	29	Bowling Green Frankfort	84 73	28 17
	Louisiana Maine,	Shreveport Portland	86 66	29 21	Fort Preble	69	23
l	Do Maryland	Eastport Baltimore	64 73	20 26	Cornish Eminittshurg	64 77	12
	Massachusetts	Boston Springfield	72 69	. 19 16	New Bedford Williamstown	73	16 2
ŀ	Do Michigan	Detroit	69	20 10	Coldwater	62	21
	Do Minnesota	Port Huron Saint Paul	68 54	-6	Fort Brady Northfield	56	4
ŀ	Do Mississippi	Moorhead Vicksburg	48 84	→ 7 31	Minneapolis Fayette	53 81	24
l	Do	Starkville Saint Louis	50 76	29 22	Protem	82	20
١	Do Montana	Springfield Fort Keogh	75 63	20 6	Oregon Fort Ellis	80	12 —17
	Do Nebraska	Terry's Landing Omaha	62 74	-15 14	Lincoln	1	17
	Do	North Platte	64 62	5 6	Fort Niobrara Golconda	71 78	0
ı	Nevada Do	Ploche		- 7	Boca	17	— 15 — 5
ļ	New Hampshire Do	Mt. Washington	44		Contoocookville New Market		11
ŀ		Little Egg Harbor, Atlantic City	75	22	Grafton South Orange	6 1 77	11
	Do New Mexico	Atlantic City Fort Bayard	72 76	21 21	Paterson Fort Union	63 75	13 4
ı	Do New York	Fort Bayard Santa F6 New York City	65 74	6 25	Lordsburg Fort Columbus	76 76	30 23
	Do	Buffalo	68	17	Johnstown	70	-6
	North Carolina	Life-saving Sta-		30	Weldon	go.	
ĺ	Do	tion No. 6	78	28 26	Lenoir	77	23
ľ	Ohio Do	Cincinnati Columbus	72 72	22	College Hill	76 72	26 10
	Do	Cleveland Sandusky	70	20 19			
ľ	Oregon Do	Umatilla	61 58	23 15			
ı	Pennsylvania Do	Pittsburg	74 67	22 14	Dyberry	67	- 1
	Rhode Island Do	Narragansett Pier Point Judith	72 70	15 15	Fort Adams	73	21
l	South Carolina Do	Charleston	80	36	Stateburg Aiken	81 80	32
	Tennessee	Memphis	81	29 28	Austin	84	25
	Do	Knoxville		27			
	Texas _Do	Fort Elliott	81	33 14	77-14	1	_
l	Utah Vermont	Burlington	66	17	Kelton Charlotte	69	14
١	Do Virginia	Lynchburg	80	27	Johnsontown	81	31
	Do				Variety Mills Wytheville	77	18
	Washington Ter Do	Almota		20 15	Fort Canby	60	27
	Do	Colfax	56	10	Helvetia	74	20
ĺ	West Virginia Wisconsin	Milwaukee	70	21 16	Beloit	81	16
ı	Do				Ripon Fort Washakie		-25
	Wyoming Do	Cheyenne Fort Washakie	65 56	15 23	FULL WASHERIO	. 01	

The monthly ranges of temperature during November, 1882, West, Florida, 28°; Olympia, Washington Territory, 30°; have varied from 19° at San Francisco, California, and 28° at Portland, Oregon, 31°; Sacramento, California, 32°; Lewiston,

Texas, Fort Sill, Indian Territory, Omaha, Nebraska, and Huron, Dakota, 60°; Fredericksburg, Texas, 61°; Henrietta, Texas, 62°; Coleman City and Uvalde, Texas, Fort Benton, Montana, and Salt Lake City, Utah, 63°; Fort Apache, Arizona, Graham, Texas, and Fort Smith, Arkansas, 64°; Fort Meade, Dakota, 65°; Forts Elliott and Stockton, Texas, and Deer Lodge, Montana, 67°; Phænix, Arizona, 68°; Fort Keogh, Montana, Rapid City, Dakota, and Denver, Colorado, 69°; West Las Animas, Colorado, 70°; Dodge City, Kansas, 71°; Fort Custer, Montana, 72°; Eagle Rock, Idaho, 75°; Fort Washakie, Wyoming, 80°; Cheyenne, Wyoming, 81°.

The greatest daily ranges have varied in the different dis-

tricts, as follows:

New England: From 18° at Provincetown, Massachusetts, on the 11th to 33° on the summit of Mount Washington, New Hampshire, on the 30th.

Middle Atlantic states: From 20° Chincoteague, Virginia, on the 15th, to 30° at Washington, District of Columbia, on the

South Atlantic states: From 20° at Hatteras, North Carolina,

on the 26th, to 29° at Augusta, Georgia, on the 3d.

Florida peninsula: From 14° at Key West, on the 20th, to 24° at Cedar Keys on the 17th, and 39° at Sanford on the 29th. East Gulf states: From 20° at New Orleans, Louisiana, on the

16th, to 28° at Vicksburg, Mississippi on the 13th, and 28° at Montgomery, Alabama, on the 23d.

West Gulf states: From 20° at Port Eads, Louisiana, on the 16th°, to 33° at Fredericksburg, Texas, on the 30th, and 41° at Fort Smith, Arkansas, on the 14th.

Rio Grande valley: From 32° at Brownsville, Texas, on the

13th, to 33° at Eagle Pass, Texas, on the 21st and 22d.

Ohio valley and Tennessee: From 20° at Louisville, Kentucky, on the 16th, to 30° at Indianapolis, Indiana, on the 12th, and 31° at Knoxville, Tennessee, on the 8th.

Lower lake region: From 18° at Sandusky, Ohio, on the 12th,

to 26° at Detroit, Michigan, on the 12th.

Upper lake region: From 17° at Duluth, Minnesota, on the

24th, to 32° at Chicago, Illinois, on the 12th.

Extreme northwest: From 28° at Saint Vincent, Minnesota, on the 13th, to 36° at Bismarck and Fort Stevenson, Dakota, on the 30th.

Northern slope: From 20° at Helena, Montana, on the 13h, to 44° at Cheyenne, Wvoming, on the 2d and 44° at North

Platte, Nebraska, on the 13th.

Middle slope: From 27° on the summit of Pike's Peak, Colorado, on the 11th, to 51° at West Las Animas, Colorado, on the 15th.

Southern slope: From 30° at Jacksborough, Texas, on the 14th and 15th, to 42° at Fort Sill, Indian Territory, on the 14th.

Southern plateau: From 29° at Fort Grant. Arizona, on the 14th, and 36° at Santa Fé, New Mexico, on the 14th, to 50° at Fort Apache, Arizona, on the 6th.

Middle plateau: From 27° at Salt Lake City, Utah, on the 3d, to 37° at Fort Washakie, Wyoming, on the 12th.

Northern plateau: From 22° at Spokane Falls, Washington Territory, on the 9th and 12th, and 22° at Lewiston, Idaho, on the 28th, to 46° at Fort Missoula, Montana, on the 6th.

North Pacific coast region: From 23° at Portland, Oregon, on the 4th, to 26° at Olympia, Washington Territory, and Rose-

burg, Oregon, on the 12th.

Middle Pacific coast region: From 14° at San Francisco, California, on the 15th, to 28° at Red Bluff, California, on the 14th. South Pacific coast region: From 28° at San Diego, California,

on the 14th, to 37° at Los Angeles, California, on the 14th.

FROSTS.

In the various districts they were reported on the following

New England: 2d to 6th, 8th to 30th.

Middle Atlantic states: 3d to 9th, 12th, 14th, 15th, 16th, 18th to 30th.

South Atlantic states: 5th to 9th, 13th to 17th, 19th to 30th.

East Gulf states: 6th, 14th, 15th, 16th, 21st, 22d, 23d, 29th,

West Gulf states: 5th, 12th to 14th, 18th to 25th, 28th, 29th, 30th.

Rio Grande valley: 20th, 21st, 22d, 28th, 29th, 30th.

Tennessee: 5th, 7th, 8th, 13th to 16th, 18th to 25th, 27th to

Ohio valley: 3d to 9th, 11th to 16th, 18th to 25th, 27th to

Lower lake region: 1st to 8th, 13th, 14th, 15th, 17th to 21st, 24th, 27th, 30th.

Upper lake region: 1st to 5th, 8th, 9th, 10th, 12th to 30th.

Extreme northwest: 1st to 4th, 6th to 30th.

Upper Mississippi valley: 1st to 4th, 7th, 8th, 9th, 12th to 30th. Missouri valley: 2d, 3d, 4th, 6th to 24th, 26th to 30th.

Northern slope: 1st to 30th.

Middle slope: 1st, 2d, 4th to 10th, 12th to 15th, 17th to 30th. Southern slope: 6th, 12th to 15th, 20th, 21st, 27th to 30th. Southern plateau: 1st to 6th, 10th to 24th, 26th to 30th.

Middle plateau: 2d, 5th to 8th, 10th to 30th. Northern plateau: 1st to 20th, 23d to 29th.

North Pacific coast region: 4th, 7th to 12th, 15th to 18th, 23d, 24th, 25th, 27th, 28th, 29th.

Middle Pacific coast region: 1st, 4th to 7th, 10th to 15th, 17th to 25th, 28th.

South Pacific coast region: 2d, 19th, 22d.

ICE.

The subject of the formation of ice in the northern sections, is considered elsewhere in the REVIEW, under the heading ICE IN RIVERS AND HARBORS. The following are exceptional cases of ice formation in the southern sections of the country.

Alabama: Auburn, 14th, 29th, 30th; Mobile, 30th.

Arizona: Wickenburg, 13th.

Arkansas: Fort Smith, 13th, 29th, 30th.

California: Princeton, 11th. Florida: Pensacola, 30th.

Georgia: Atlanta, 22d; Savannah, 30th.

Louisiana: Shreveport, 13th.

Mississippi: Fayette, 29th; Vicksburg, 14th.
North Carolina: Charlotte, 30th; Fort Macon, 30th; Kittyhawk, 15th, 25th, 26th; Smithville, 22d.

Oregon: Portland, 10th, 11th. South Carolina: Stateburg, 23d.

Tennessee: Ashwood, 7th, 13th, 14th; Austin, 13th, 14th, 21st, 22d, 23d; Knoxville, 14th; Memphis, 3d, 4th, 28th, 29th; Nashville, 14th.

Texas: Coleman City, 13th, 29th, 30th; Denison, 29th, 30th; Fort Concho, 13th, 14th, 30th; Fort Davis, 17th to 20th; Indianola, 30th; Palestine, 30th.

Virginia: Johnsontown, 15th, 18th to 22d, 26th; Norfolk, 26th; Variety Mills, 26th.

PRECIPITATION.

(Expressed in inches and hundredths.)

The distribution of rainfall over the United States and Canada, as determined from observations taken at more than six hundred stations, is exhibited on chart iii. The table in the lower left-hand corner of this chart shows the average monthly rainfall, determined from the records of Signal Service stations, in the several districts, it shows also the excess or deficiency of precipitation as compared with the average of many years.

In California, and over the southern part of the country from Arizona to the Mississippi river, in Florida, and in the extreme northwest, the rainfall has been greater than the November average. In northern California, the excess amounts to 2.13; the southern slope, 1.34; and in other districts named, it varies from 0.05 in southern California, to 0.87 in the Rio Grande valley. Throughout the rest of the country, there has been a deficiency in the monthly rainfall. The largest deficiencies occurred as follows: 2.98 in New England; 2.38 in the north Pacific coast region; 2.41 in the middle Atlantic states; and 1.90 in the east Gulf states. In all other districts, embraced in the area of de-